

Duboff

WHAT IS CLAIMED IS:

1. A method for preventing plaque build-up in a coronary artery, comprising:
5 providing an electrical field generating device, wherein providing the electrical field generating device includes inserting an implant in a patient's body, connecting the implant to a lead, and extending the lead within the patient's body adjacent the coronary artery; and
generating an electrical field in the coronary artery to prevent plaque build-up in the coronary artery.

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2. The method according to claim 1, wherein the lead includes an electrode patch, and extending the lead includes positioning the electrode patch epicardially on a heart adjacent to the coronary artery.

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3. The method according to claim 1, wherein extending the lead includes inserting the lead into a vein adjacent the coronary artery, and generating the electric field includes producing an electric field of sufficient strength to pass through walls of the vein and the coronary artery to prevent plaque from adhering to the wall of the coronary artery.

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4. The method according to claim 1, wherein inserting the implant includes sensing a heart rhythm of the patient's heart, and generating the electrical field includes outputting a non-excitatory electrical field such that the electrical field does not interfere with the heart rhythm.

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5. The method according to claim 4, wherein generating the electrical field includes generating the field after heart depolarization.

6. The method according to claim 5, wherein generating the electric field includes periodically producing the electric field and spacing the electrical fields about 10 seconds apart.

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7. The method according to claim 1, wherein connecting the implant to a lead includes connecting the implant to at least two electrodes on the lead such that the electrical field is generated between the at least two electrodes.

8. The method according to claim 1, wherein connecting the implant to a lead includes 10 connecting the implant to at least two leads each having one electrode, and spacing the two electrodes apart from each other such that the electrical field generated between the two electrodes reduces plaque build-up in the coronary artery.

9. The method of claim 1, wherein generating the electrical field includes generating 15 the electrical field during the refractory period at a higher strength and generating the electrical field during the non-refractory period at a lower strength..

10. An apparatus for preventing plaque build-up in a coronary artery, comprising:
a heart rhythm sensing unit;
20 an electrical field generating device connected to the heart rhythm sensing unit, the electrical field generating device produces an electrical field that does not interfere with the heart rhythm; and
a lead unit connected to the electrical field generating device, the lead unit producing the electrical field adjacent the coronary artery to reduce plaque build-up in 25 the coronary artery.

11. The apparatus according to claim 10, wherein the electrical field generating device includes an implantable housing, a power source within the housing, and electrical field generating circuitry connecting the power source to the lead unit.

12. The apparatus according to claim 10, wherein the lead unit includes an electrode patch positioned epicardially on the heart.

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5 13. The apparatus according to claim 10, wherein the lead unit is an intracardial lead and is positioned in a vein adjacent the coronary artery.

14. The apparatus according to claim 10, wherein the lead unit includes two leads each having an electrode thereon, the electrodes being spaced from one another in a body with the coronary artery therebetween, and the lead unit flowing current between the 10 two leads to create the electrical field in the coronary artery and prevent plaque build-up in the coronary artery.

15. The apparatus according to claim 14, wherein one of the two leads is positioned in an anterior vein and a second of the two leads is positioned in a lateral vein, and the 15 electrical field is a non-heart-excitatory signal passing through a left marginal artery and an anterior interventricular artery.

20 16. The apparatus according to claim 10, wherein the electrical field generating device produces an electrical field less than is needed to capture the cardiac tissue.

20 17. The apparatus according to claim 16, wherein the electrical field generating device produces an electrical field less than every 10 seconds.

25 18. The apparatus according to claim 10, wherein the electrical field generating device produces an electrical field after a depolarization wave in the heart.

19. The apparatus according to claim 10, wherein the electrical field generating device includes a controller and therapy circuits for providing heart rhythm management signals to a heart.

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20. The apparatus according to claim 10, wherein the electrical field generating device produces an electrical field during a refractory period of the heart rhythm.

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